

## PRESS RELEASE

### Automated high-capacity public transport buses:

#### **more efficiency, more safety and more comfort is not sufficient for passenger acceptance**

*So what is it that passengers need to prefer Public Transport?  
The answer comes from experiments carried out in Luxembourg*

Automated, driverless high-capacity public transport buses will be more efficient, safer, and comfortable than the buses that are in use today. **This however does not guarantee that passengers will accept automated buses.** This is because the perceived role of the driver goes beyond that of simply controlling the vehicle. **Experiments carried out in Luxembourg** by the E-Bus Competence Center within the Horizon 2020, PAsCAL\* project (<https://www.pascal-project.eu/>), revealed that **passenger acceptance of driverless automated buses is not only dependent upon the perception of enhanced vehicle safety** (e.g., crash risk) **but also personal security** (e.g., the risk of being a victim of crime).

**The study carried out in Luxembourg between June and December 2021** included 7 experiments involving 51 daily commuters traveling in a 12m bus. A ‘Wizard of Oz’ methodology was applied i.e. the vehicle was presented in a way such that the passengers believed that they were traveling in an automated driverless bus. **Different driving scenarios**, including staged technical issues, traveling at night, and traveling alone were tested. Some scenarios included digital assistance including proactive and reactive video and voice connection with a control center.

**The main outcome of the experiments is that passengers are generally accepting of the technology** and appreciate its safety and environmental benefits. **However, they indicate a perceived lower service quality due to the absence of a driver on the bus.** Therefore, digital forms of assistance – including on-demand contact with a control center – will need to be developed to mitigate these deficiencies in service-quality.

**The results indicate that**, in typical daylight operations with several passengers on board, the on-demand and proactive support provided by a control center will be sufficient. Mobile applications can act as an additional personal interface between an operator and the passengers. However, they cannot wholly replace in-vehicle systems for example, for people with disabilities, who might have limited access to personal devices. The issues surrounding **traveling at night**, when passengers are often alone in the bus, requires further study. It appears that in such cases, the absence of a driver is a significant issue. Moreover, **communication technology solutions will not always be able to provide the necessary support** in an acceptable timeframe for severe personal threat and emergency situations.

**One of the main conclusions of this study was that automation technology alone is not a silver bullet that will make public transport more attractive.** An automated

or an autonomous bus operating in mixed traffic, with autonomous and conventional vehicles sharing the same road, will only be marginally more attractive than a conventional bus. Therefore, automation **shall be seen as rather an enabler of new applications allowing** to efficiently prioritize buses in traffic to make them the more attractive choice.

*\* PASCAL- acronym for "Enhance driver behaviour and Public Acceptance of Connected and Autonomous vehicles" is an European project aimed to develop a multidimensional map of public acceptance of higher levels of Connected and Autonomous Vehicles (CAV), pointing out any critical issues on the matter, particularly investigating the new "driver" needs considering different modes and mobility services. PASCAL's goal is to create a "Guide2Autonomy" (G2A), a set of guidelines and recommendations aimed at accelerating the user-friendly evolution of connected automated vehicles and transport systems.*



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